

REMARKS

The Office Action has been reviewed, and the Examiner's comments carefully considered. Applicant respectfully requests reconsideration of the present application in view of the reasons that follow. No claims are amended, added, or canceled. Claims 2-22 remain pending in this application, and are submitted for reconsideration.

Rejection of claims 2-13 and 16-21 based on Ozaki

Claims 2-13 and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-099906 ("Ozaki"). This rejection should be withdrawn because Ozaki fails to disclose, teach, or suggest the claimed invention.

For example, claim 2 recites, among other things, a hinge having at least one hinge carrier arranged on the vehicle body, at least one hinge arm arranged on the hood, and at least one connecting part for a pivotable connection of the at least one hinge arm to the at least one hinge carrier. The hinge is configured so that the pivotable connection of the at least one hinge arm to the at least one hinge carrier is released in an event of an accident by removal and/or destruction of the at least one connecting part due to forces acting in a direction of a pivot axis of the hinge. Ozaki does not teach or suggest this combination of features. For instance, Ozaki does not teach or suggest a hinge configured so that the pivotable connection of the at least one hinge arm to the at least one hinge carrier is released in an event of an accident by removal and/or destruction of the at least one connecting part due to forces acting in a direction of a pivot axis of the hinge.

Ozaki discloses a hinge mechanism that permits the rear portion of the hood to raise if a bumper sensor detects a collision with an obstacle. None of the disclosed hinge mechanisms of Ozaki involve the removal and/or destruction of a connecting part due to forces acting in a direction of a pivot axis. For example, Figs. 1-5 of Ozaki show a pin 5 of the hinge mechanism which is held in place by a spring 8 acting on a locking member 7. (Paragraph 0012 of the machine translation of Ozaki, attached as Exhibit A.) Neither the pin 5 nor the locking member 7 of Fig. 1-5 of Ozaki is removed and/or destroyed by forces acting in a direction of a pivot axis, but the locking member 7 releases the pin 5 when the force of the actuator 19 acts on the hood in the vertical direction of the hood so as to overcome the spring force of the spring 8.

Figs. 9-16 of Ozaki show a pin 5 held in a notch 40b. The notch 40b may take any form shown in Fig. 13 of Ozaki. Neither the pin 5 nor the notch 40b is removed and/or destroyed by forces acting in a direction of the pivot axis, but the pin 5 may be removed from the notch or the notch is fractured due to the force of the actuator 19 acting on the hood in the vertical direction of the hood. (Paragraph 0016 of the machine translation of Ozaki.)

Figs. 17-18 of Ozaki show a pin 50 held in a notch 41b. Neither the pin 50 nor the notch 41b is removed and/or destroyed by forces acting in a direction of the pivot axis, but the pin 50 may be removed from the notch or the notch is fractured due to the force of the actuator 19b acting on the hood in the vertical direction of the hood. (Paragraph 0020 of the machine translation of Ozaki.)

Because all the embodiments of Ozaki disclose a hinge configured so that the connection is released by removal and/or destruction of the at least one connecting part due to forces acting in a vertical direction of the hood, Ozaki does not teach or suggest a hinge configured so that the pivotable connection of the at least one hinge arm to the at least one hinge carrier is released in an event of an accident by removal and/or destruction of the at least one connecting part due to forces acting in a direction of a pivot axis of the hinge. Because Ozaki does not teach these features of claim 2, claim 2 is allowable over Ozaki.

Claim 3 recites, among other things, a hinge comprising at least one hinge carrier arranged on the vehicle body, at least one hinge arm arranged on the hood, and at least one connecting part for a pivotable connection of the at least one hinge arm to the at least one hinge carrier. The hinge is configured so that the pivotable connection of the at least one hinge arm to the at least one hinge carrier is released in an event of an accident by removal and/or destruction of the at least one connecting part. The at least one connecting part is designed as an explosive bolt or shear bolt. Ozaki does not teach or suggest this combination of features. For instance, Ozaki does not teach or suggest an explosive bolt or shear bolt.

None of the disclosed hinge mechanisms of Ozaki involve an explosive bolt or shear bolt. For example, Figs. 1-5 of Ozaki show a pin 5 of the hinge mechanism which is held in place by a spring 8 acting on a locking member 7. (Paragraph 0012 of the machine translation of Ozaki.) The pin 5 of Fig. 1-5 of Ozaki does not explode or shear, but the locking member 7 releases the pin 5 when the force of the actuator 19 acts on the hood in the vertical direction so as to overcome the spring force of spring 8.

Figs. 9-16 of Ozaki show a pin 5 held in a notch 40b. The pin 5 does not explode or shear, but the pin 5 may be removed from the notch or the notch is fractured due to the force of the actuator 19 acting on the hood in the vertical direction. (Paragraph 0016 of the machine translation of Ozaki.)

Figs. 17-18 of Ozaki show a pin 50 held in a notch 41b. The pin 50 does not explode or shear, but the pin 50 may be removed from the notch or the notch is fractured due to the force of the actuator 19b acting on the hood in the vertical direction. (Paragraph 0020 of the machine translation of Ozaki.)

Because all the embodiments of Ozaki disclose a pin that does not explode or shear, Ozaki does not teach or suggest all the features of claim 3. Thus, claim 3 is allowable over Ozaki.

Claim 18 recites, among other things, an airbag configured to release a hood from the vehicle body using forces generated by the airbag that act in a direction of a pivot axis of the hinge when the airbag is deployed in a region of the hinge. Ozaki does not teach or suggest such an airbag. For instance, the actuator 19 in Figs. 8 and 17 of Ozaki is configured to release a hood using forces generated in a vertical direction of the hood, not in a direction of a pivot axis of the hinge. Because Ozaki does not teach or suggest the airbag of claim 18, claim 18 is allowable over Ozaki.

Claims 4-13, 16-17, and 19-21 depend from and contain all the features of claim 2 or 18, and are allowable for the reasons above, without regard to the further patentable features contained therein.

For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of claims 14-15 based on Ozaki and Sasaki

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki in view of U.S. Patent 6,257,657 (“Sasaki”). Claims 14-15 depend from and contain all the features of claim 2. As previously mentioned, Ozaki does not teach or suggest a hinge configured so that the pivotable connection of the at least one hinge arm to the at least one hinge carrier is released in an event of an accident by removal and/or destruction of the at least one connecting part due to forces acting in a direction of a pivot axis of the hinge, as

recited in claim 2. Sasaki does not cure the deficiencies of Ozaki. Therefore, claim 2 and its dependent claims 14-15 are allowable over the combination of Ozaki and Sasaki. For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of claim 22 based on Ozaki and Knight-Newbury

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki in view of WO 03/086826 (“Knight-Newbury”). Claim 22 depends from and contains all the features of claim 18. As previously mentioned, Ozaki does not teach or suggest the airbag of claim 18. Knight-Newbury does not cure the deficiencies of Ozaki for at least the reason that Knight-Newbury is not prior art.

It is respectfully submitted that the § 102(e) prior art date of Knight-Newbury corresponds to its international filing date of April 4, 2003. The present application claims priority to DE 102 52 285.5 (DE ‘285), which was filed on November 6, 2002. The claim of foreign priority for this application has been perfected by submission of the English translation of DE ‘285 filed on May 12, 2008. The perfected claim of foreign priority predates the § 102(e) prior art date of Knight-Newbury, thus removing Knight-Newbury as prior art against the present application. Because Knight-Newbury is not prior art, any rejection based on the teachings of Knight-Newbury is improper. Accordingly, the withdrawal of the rejection over Ozaki and Knight-Newbury is respectfully requested for at least this reason.

Conclusion

It is believed that the present application is now in condition for allowance. Favorable reconsideration of the application is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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EXHIBIT A

AN ENGLISH MACHINE TRANSLATION OF JP 11-99906

*** NOTICES ***

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] When the vehicles under run collide with an obstacle, this invention carries out absorption relaxation of the shock at the time of the obstacle upper part falling on a hood and carrying out a secondary collision to this hood upper surface after an obstacle's colliding with a vehicle front part, and relates to the shuttlecock raising type hood which protects an obstacle.

[0002]

[Description of the Prior Art] The former has bounded, and there are JP,49-110432,U and JP,59-26370,A as a formula hood, and these, When an obstacle collides, the back end of a hood has been eliminated, clearance is taken between the structure in an engine room, and a hood, and absorption relaxation of the shock at the time of colliding is carried out.

[0003]

[Problem(s) to be Solved by the Invention] However, the former had bounded, and since the formula hood was constituted so that the hood back end may be raised, but it did not have a statement when usually opening and closing the hood in check of an engine room, etc., there was a problem that opening and closing were usually incompatible with the shuttlecock raising of a hood. Although opening and closing are usually compatible with the shuttlecock raising of a hood, the latter, Since the hood had been eliminated by the power of colliding at the time of an obstacle colliding, when a certain amount of load irrespective of the existence of a collision was added to the hood and it runs the bad road surface which is irregular when a hood bounds, it moves in the direction of a raising and a hood fluctuates, the body has backlash **** possibility. Since the abbreviated vertical load in which a hood leaps up to the abbreviated horizontal load in the case of a collision is small, it needs to lengthen the length of the link of a hinge and needs to make abbreviated vertical load increase. Therefore, it will be necessary to enlarge a hinge and there is a problem that a big space is needed.

[0004]

[Means for Solving the Problem] Then, this invention detects a collision with an obstacle, raises the hood back end with an actuator, makes it a hinge mechanism which was usually compatible with a shuttlecock raising of a hood in opening and closing, and carries out bounding and holding a hood

in raising height, and an object of this invention is to provide a shuttlecock raising type hood which eases a shock to an obstacle. A hinge mechanism provided in right and left of the hood back end, respectively like Japanese Patent Application No. No. 276406 [eight to] by the applicant as a means for business solution in order to usually open and close the hood front end with a hood lock device of hood anterior part, When an obstacle detecting means and this obstacle detecting means detect an obstacle, in order to rotate focusing on a fulcrum of a hood lock device of anterior part of a hood, to have an actuator which has hit the hood back end and to carry out clearance reservation between a hood and the body, It is characterized by having a hinge mechanism which has the function to eliminate a hood and to hold in a raising position. If it is in this invention, an intermediate link of said hinge mechanism is connected with the hood side hinge by a pin at rotation freedom, and another side is moved to a vertical direction, while an intermediate link slides along a slot established in the body side hinge. Although it bounds and a slide of an intermediate link serves as the maximum in the state of a raising, When it collides with a hood, a key part is formed in a slot of the vehicles side hinge so that height of a hood may be held, and it is characterized by a hood's bounding and making it not return to a state before a raising by fixing a slide of a sliding member. Bound and so that it may become possible [normal-open close, such as check of an engine room,] for said hinge mechanism before a raising, A pin of a fulcrum of a hinge mechanism is received by notching of the body side hinge, and it is fixing by it and a pin lock means to have a lock member by power of elastic bodies (an embodiment when a spring is used explains by this invention below.), such as a spring formed in the body side hinge. It raises in a hood, and at the time, it raises in a hood of said actuator, power overcomes spring power of said pin lock means, a lock separates, and it is characterized by making it possible to have eliminated a hood. It raises in a hood, and since notching etc. are provided in the upper part at the body side hinge of said hinge mechanism, at the time, it raises in a hood of said actuator, and power is inputted into said pin and acts on the body side hinge via a pin. Since there are notching etc. in the body side hinge upper part at this time, it fractures by a certain input load, a pin rotates focusing on a fulcrum of a hood lock device of anterior part of a hood, and it is characterized by making it possible to have eliminated the hood back end. Slide an intermediate link along a slot of the side of the body side hinge, and height, It is characterized by a hood's bounding and making it not return to a state before a raising by bounding, becoming the maximum in the state of a raising, and fixing an intermediate link to a key part formed in a slot of the vehicles side hinge so that the position might be held.

[0005]

[Function]If the obstacle detecting means allocated by the body detects the collision with an obstacle according to the 1st feature, an active signal will be outputted to an actuator, and it will act so that an actuator may go up the hood back end. When it raises in the hood of an actuator, power overcomes the spring power of a means for locking of the pin of a hinge mechanism and a lock separates, a hood, It rotates focusing on the fulcrum of the hood lock device of the anterior part of a hood, and while an intermediate link slides along the slot established in the body side hinge so that clearance reservation may be carried out between a hood and the body, it moves to a vertical direction. Eventually, the hood has eliminated the intermediate link and it is held at a

position, and when the obstacle which collided to the vehicle front part falls on a hood, it eases the shock at the time of the upper part of an obstacle carrying out a secondary collision to a hood. Usually, when opening a hood, the pin of a hinge mechanism fixed to rotation freedom by the pin lock means is made into a fulcrum, and the hood front can be opened by engine room check etc. and closed. When an obstacle detecting means malfunctions, although a hood leaps up, it can store a hood in the original position easily by folding the sliding member of the both sides of a hinge mechanism, and pushing down the hood back end, removing an actuator section and raising a hood upwards further.

[0006]If the obstacle detecting means allocated by the body detects the collision with an obstacle according to the 2nd feature, an active signal will be outputted to an actuator, and it will act so that an actuator may go up the hood back end. Raise in the hood of an actuator, and are power, and a part of body side hinge fractures, and a hood, It rotates focusing on the fulcrum of the hood lock device of the anterior part of a hood, and while an intermediate link slides along the slot established in the body side hinge so that clearance reservation may be carried out between a hood and the body, it moves to a vertical direction. Eventually, the hood has eliminated the intermediate link and it holds a state, and when the obstacle which collided to the vehicle front part falls on a hood, it eases the shock at the time of the upper part of an obstacle carrying out a secondary collision to a hood. Usually, when opening a hood, the pin of the hinge mechanism of rotation freedom is made into a fulcrum, and the hood front can be opened by engine room check etc. and closed.

[0007]

[Embodiment of the Invention]An embodiment when the car of this invention has bounded and a formula hood is hereafter applied to vehicles is described based on drawing 1 - drawing 8. The bumper sensor 16 is allocated in the front end part by the front bumper 15 of these vehicles. This bumper sensor 16 can detect a pedestrian's collision with the contact switch etc. through which a point of contact will flow according to it if compressed by the impacting vehicle force inputted from the front.

[0008]The speed sensor 20 has detected the speed signal from a speedometer or the tire for ABS. Various signals operate above the actuator 19 which has hit the back end of the hood 1 by the controller 21.

[0009]The hood 1 is held for the front end part to the body by the hinge mechanism 11 by which the hood lock mechanism 10 and the rear end part have been arranged at right and left. The hood side hinge 2 is concluded by the hood 1 with a bolt, and, as for the hinge mechanism 11, the body side hinge 4 is concluded by the body 3 with the bolt. The slot 4a and the notching 4b are formed in the body side hinge 4, and there is the intermediate link 9 slid along the slot 4a in it.

[0010]The other end of the intermediate link 9 is inserted in the pin 5 attached to the hood side hinge 2, and can rotate the pin 5 top to rotation freedom. The cylinder side fitted in the notching 4b of the body side hinge 4, and the pin 5 has regulated that the hood 1 moves to a cross direction. The pin lock member 7 is forced on the cylinder side of the pin 5 with the spring 8 so that the pin 6 may be put on the body side hinge 4 and movement of the sliding direction of the pin 5 may be regulated at the pin 5. The intermediate link 9 slides the slot 4a of the body side hinge 4, and it

serves as the key part 4c in the neighborhood which the hood 1 bounds and will be in a raising state, and he is trying not to slide it by the key part 4c of the intermediate link 9 fang furrow 4a, as the hood 1 which went up in once does not close as it is.

[0011]Next, an operation of this embodiment is explained.

The <<time of a usual run>> In drawing 3, the pin 5 by which the hood side hinge 2 concluded with the hood 1 and the bolt serves as a fulcrum for rotating is regulated by the notching 4b of the body side hinge 4 with which it acted to the body 3 as bolting Yu of the cross direction. The pin lock member 7 which rotates the pin 6 of the body side hinge 4 at a fulcrum forced the cylinder side of the pin 5 with the spring 8, and has regulated the sliding direction. Therefore, the hood 1 is certainly restrained by the body.

[0012]<<Case where an obstacle collides>> In drawing 4, drawing 6 - drawing 8, while vehicles run, If it collides with an obstacle with the vehicle speed more than a set vehicle speed (drawing 7, S1), the bumper sensor 16 of an obstacle detecting means attached to speed sensor 20 signal and the front bumper 15 will receive load (drawing 7, S2), The actuator 19 is operated so that a signal may send the controller 21 to the actuator 19 which has hit the hood 1 and the back end of the hood 1 may be raised up with the signal with which the bumper sensor 16 operated (drawing 7, S3). Although the spring power of the spring 8 is working via the lock member 7 at the pin 5 and has regulated the upward movement of the hood 1 at it in the hinge mechanism 11 at this time, The power of the actuator 19 which raises the pin 5 up overcomes it, the hood 1 and the hood side hinge 2 make a fulcrum the hood lock device 10 of the front end of the hood 1, and the back end of the hood 1 goes up. The hood 1 is uprighted sliding the sliding member 9 along the slot 4a of the body side hinge 4 going up. The hood 1 has eliminated the intermediate link 9 and it regulates quantity, and it is fixed so that it may not slide by the key part 4c of the slot 4a. For this reason, as for the obstacle with which vehicles collided, the obstacle lower part collides with the front end part of vehicles.

Then, the obstacle upper part falls on the hood 1.

Here, since the hood 1 has leaped up, clearance with the built-in object of an engine room is secured, and it absorbs collision energy with the rigidity of the hood 1 and the intermediate link 9.

[0013]<<Hood opening and closing>> In drawing 5, when opening the hood 1 for the inside of an engine room by check etc., first, the lock of the hood lock device 10 of the front end of the hood 1 is removed, and the anterior part of the hood 1 is raised. The body side hinge 4 with which the bolting join of the cross direction was carried out for the pin 5 by which the hood side hinge 2 concluded with the hood 1 and the bolt serves as a fulcrum for rotating in the hinge mechanism 11 at this time to the body 3 It is regulated by the notching 4b of the shape. Since the pin lock member 7 which rotates the pin 6 of the body side hinge 4 at a fulcrum forced the cylinder side of the pin 5 with the spring 8 and the sliding direction is regulated, the hood 1 can raise the anterior part of the hood 1 for the pin 5 with the hood side hinge 2 at a fulcrum. Thereby, the hood 1 is opened and the check in an engine room, etc. are attained.

[0014]Next, this invention embodiment 2 is described based on drawing 1, 2 and drawing 6 - drawing 16. Drawing 6 - the bumper sensor 16 of drawing 8 can detect a pedestrian's collision with the contact switch etc. through which a point of contact will flow according to it if compressed by

the impacting vehicle force inputted from the front. Although not illustrated, the speed sensor 20 has detected the speed signal from a speedometer or the tire for ABS. Various signals operate above the actuator 19 which has hit the back end of the hood 1 by the controller 21. In drawing 9 - drawing 16, the hood 1 is held for the front end part to the body by the hinge mechanism 11a by which the hood lock mechanism 10 and the rear end part have been arranged at right and left. The hood side hinge 2 is concluded by the hood 1 with a bolt, and, as for the hinge mechanism 11a, the body side hinge 40 is concluded by the body 3 with the bolt. The slot 40a is established in the body side hinge 40, and there is the intermediate link 9 slid along the slot 40a in it. The pin 5 is inserted with the hood side hinge 2 and the body side hinge 40, and the other end of the intermediate link 9 can rotate the pin 5 top to rotation freedom. It has regulated that the hood 1 moves in the direction of front and rear, right and left. The intermediate link 9 slides the slot 40a of the body side hinge 40, and it serves as the key part 40c in the neighborhood which the hood 1 bounds and will be in a raising state, and he is trying not to slide it by the key part 40c of the intermediate link 9 fang furrow 40a, as the hood 1 which went up in once does not close as it is. In the upper part which touches the body side hinge 40 and the pin 5, as shown in drawing 12 and drawing 13, in notching, a slot, etc., the hood 1 tends to leap up, and if a certain load is inputted by the pin 5, it will fracture.

[0015]Next, an operation of this embodiment is explained.

The <<time of a usual run>> The pin 5 is inserted in the body side hinge 40 which acted to the hood side hinge 2 with which the hood 1 was concluded with the hood 1 and the bolt, and the body 3 as bolting Yu in drawing 9, It is fixed by the hinge mechanism 11a of these right and left, and the hood lock mechanism 10 of the front end of the hood 1, and the hood 1 is certainly restrained by the body. For this reason, it does not generate with [of the hood 1 under run, or a hinge mechanism] the backlash of 11a.

[0016]<<Case where an obstacle collides>> In drawing 6 - drawing 8 and drawing 9 - drawing 10, if it collides with an obstacle with the vehicle speed more than a set vehicle speed while vehicles run, The speed sensor 20 and the bumper sensor 16 of an obstacle detecting means attached to the front bumper 15 receive load, and the bumper sensor 16 with the signal which operated the controller 21, A signal sends to the actuator 19 which has hit the hood 1, and the actuator 19 is operated so that the back end of the hood 1 may be raised up. At this time, the power of the actuator 19 which raises the pin 5 up acts on the pin 5 in the hinge mechanism 11a. At this time, the notching 40b of the body side hinge 40 formed in the rising direction of the hood 1 via the pin 5 by the power of the actuator 19 is made to fracture, the hood 1 and the hood side hinge 2 make a fulcrum the hood lock device 10 of the front end of the hood 1, and the back end of the hood 1 goes up. The hood 1 is uprighted sliding the intermediate link 9 along the slot 40a of the body side hinge 40 going up. The hood 1 has eliminated the intermediate link 9 and it regulates quantity, and it is fixed so that it may not slide by the key part 40c of the slot 40a. For this reason, as for the obstacle with which vehicles collided, the obstacle lower part collides with the front end part of vehicles.

Then, the obstacle upper part falls on the hood 1.

Here, since the hood 1 has leaped up, clearance with the built-in object of an engine room is

secured, and it absorbs collision energy with the rigidity of the hood 1 and the intermediate link 9. [0017]The example of shape of the notching 40b is shown in drawing 12 and drawing 13. If the washer 13 of resin is arranged at both sides so that backlash may not occur, but there is usually notching in the fulcrum of a hinge as shown in drawing 14, resin may overflow in the case of a caulking and it may not be smooth in rotation of a hinge. Then, the ** isomorphous-like sections 14a and 14b are formed, as shown in drawing 15, with notching, as shown in drawing 16, the flash of resin is prevented, and opening and closing of the smooth hood 1 are attained.

[0018]<<Hood opening and closing>> In drawing 11 a, when opening the hood 1 for the inside of an engine room by check etc., first, the lock of the hood lock device 10 of the front end of the hood 1 is removed, and the anterior part of the hood 1 is raised. Since the pin 5 is inserted in the body side hinge 40 which acted to the hood 1, the hood side hinge 2 concluded with the bolt, and the body 3 as bolting Yu in the hinge mechanism 11a at this time, the hood 1 can raise the anterior part of the hood 1 for the pin 5 with the hood side hinge 2 at a fulcrum. Thereby, the hood 1 is opened and check etc. become possible about the inside of an engine room.

[0019]Embodiment 3 is shown in drawing 17 - drawing 18. In this embodiment, the composition with the hood lock device of hood 1 anterior part usually, When the hinge mechanism 11b provided in the right and left of the hood 1 back end, respectively in order to open and close the hood front end, an obstacle detecting means, and said obstacle detecting means detect an obstacle, It is characterized by having said actuator 19b which rotates focusing on the fulcrum of the hood lock device of the anterior part of the hood 1, raises in the actuator 19b which has hit the hood 1 back end, and holds a position. Said hinge mechanism 11b comprises the pin 50 inserted in the hood side hinge 2a and the body side hinge 41. Notching is provided in the upper part 41b at the body side hinge 41 of said hinge mechanism 11b.

[0020]Next, an operation is explained. It raises in a hood, and at the time, it raises in the hood of said actuator 19b, and said pin 50 is inputted and power acts on the upper part 41b of the body side hinge 41 via the pin 50. Since there are notching etc. in the upper part 41b of the body side hinge 41 at this time, it fractures by a certain input load, and it rotates focusing on the fulcrum of the hood lock device of the anterior part of the hood 1, and the pin 50 has eliminated the hood 1 back end. By holding the shuttlecock raising height, by [which a hood bounds and do not return to the state before a raising] carrying out, clearance with the built-in object of an engine room is secured, and the actuator 19b absorbs collision energy with the rigidity of the hood 1 and the AKUCHUE evening 19b. Opening and closing of the usual hood are the same as that of the hinge mechanism which is over and does not have a raising mechanism, and remove, open and close the hood lock device of the front end of the hood 1.

[0021]

[Effect of the Invention]In the shuttlecock raising type hood according to claim 1, Have bounded, in response to collision detection from the obstacle detecting means which detects the collision with an obstacle, and this obstacle detecting means, eliminate the hood back end, and A raising means, Since it constituted from a hinge mechanism provided in hood rear end part right and left, and a hood lock device whose hood opening and closing it is provided in a hood front end part, and are attained, When an obstacle collides, by having ****ed the hood lock for the back end of a

hood at the fulcrum, clearance can be established between an engine room and a hood and shock relaxation of the secondary collision to a hood is attained. It bounds and raises with raising detection, and a means and by having bounded and having divided the hinge mechanism of the raising, optimization and miniaturization of each function can be achieved, it becomes easy to carry out arrangement to vehicles also as the whole, and it becomes possible to store this device in vehicles. In the shuttlecock raising type hood according to claim 2, In the shuttlecock raising type hood according to claim 1, a hinge mechanism, The hood side hinge concluded at the hood side, and the body side hinge concluded at the body side, The intermediate link slid along the slot established in the body side hinge or the hood side hinge, Since the pin supported so that this intermediate link and the hood side hinge can be rotated, the pin lock member arranged so that a fulcrum may be put on the body side hinge and said pin may be touched, and this pin lock member were constituted from an elastic body pushed against said pin, When it is a hinge mechanism in which the shuttlecock raising of a hood is possible and a hood is opened by check of an engine room, etc., the pin of a hinge mechanism is made into a fulcrum and opening and closing of a hood are smoothly possible. In the shuttlecock raising type hood according to claim 3, it bounds, and when it acts more than the power of the elastic body (spring) of a raising means in which it has bounded and power forces a pin lock member on a pin, a pin lock member is opened. For this reason, the back end of a hood has been eliminated. In the shuttlecock raising type hood according to claim 4, The pin which is rotation freedom at the hood side hinge with which the hinge mechanism was concluded by the hood with the bolt etc., the body side hinge concluded by the body with the bolt etc., and the hood side hinge, Since it constituted from an intermediate link slid along the slot which was attached to this pin and established in the body side hinge, when opening a hood by check of an engine room, etc., the pin of a hinge mechanism is made into a fulcrum and opening and closing of a hood are smoothly possible. When having provided notching etc. in the upper part of the body side hinge and having eliminated the back end of a hood, It bounded and the upper part of the body side hinge was fractured with the power of the raising actuator, after that, up the back end of the hood could be raised continuously and the shuttlecock raising of the back end of the hood normal-open close and a hood became possible. In the shuttlecock raising type hood according to claim 5, A hinge mechanism is constituted from a pin which is rotation freedom in the hood side hinge concluded by the hood with the bolt etc., the body side hinge concluded by the body with the bolt etc., and the hood side hinge, When notching etc. were provided in the upper part of the body side hinge and the back end of a hood had been eliminated, the upper part of the body side hinge was fractured with the power of the actuator, after that, up the back end of the hood could be raised continuously and the shuttlecock raising of the back end of the hood normal-open close and a hood became possible. In the shuttlecock raising type hood according to claim 6, it stands straight, bounding and sliding the slot at the time of a raising, and since it fits in a key part and the height of a hood is held, when an obstacle collides with a hood, collision energy can be absorbed with a hood. It writes with the hinge mechanism which has an intermediate link, and adjustment of a collision energy absorbed amount becomes easy by changing the shape of an intermediate link. In the shuttlecock raising type hood according to claim 7, collision energy absorption is shared with the shuttlecock raising of a hood,

and maintenance of height with the actuator which has hit the back end of a hood, it becomes compact composition, and reduction of part mark and cost reduction of parts can be performed. In the shuttlecock raising type hood according to claim 8, Since it allocated so that the section provided in the upper part of the body side hinge might be mostly made into the shape of isomorphism with notching in the shuttlecock raising type hood according to claim 4 to 5 and it might not drop out below in set load by a circumferencial direction further, Opening and closing of a hood are smooth, and the hood has bounded, at the time, the upper part of a section or the body side hinge can be fractured, and it can raise a hood to a position. In the shuttlecock raising type hood according to claim 9, In the shuttlecock raising type hood according to claim 4 to 5, notching or the section provided in the upper part of the body side hinge makes a hood lock device a fulcrum, and since it formed the maximum weak point of the fracture in the direction rotating around the back end of a hood, the minimum has eliminated it and it can fracture it efficiently by power.

[Translation done.]

*** NOTICES ***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] Have bounded, in response to collision detection from an obstacle detecting means which detects a collision with an obstacle, and this obstacle detecting means, eliminate the hood back end, and A raising means, a hinge mechanism provided in hood rear end part right and left, a hood lock device whose hood opening and closing it is provided in a hood front end part, and are attained, and a shuttlecock raising type hood coming out and constituting.

[Claim 2] In the shuttlecock raising type hood according to claim 1, a hinge mechanism, The hood side hinge concluded at the hood side, and the body side hinge concluded at the body side, An intermediate link slid along a slot established in the body side hinge or the hood side hinge, a pin supported so that this intermediate link and the hood side hinge can be rotated, a pin lock member arranged so that a fulcrum may be put on the body side hinge and said pin may be touched, an elastic body which forces this pin lock member on said pin, and a shuttlecock raising type hood coming out and constituting.

[Claim 3] A shuttlecock raising type hood rotating said pin lock member in the direction to open, and having eliminated the hood back end when power beyond load of an elastic body in which, as for a hinge mechanism, power of said shuttlecock raising means acts on said pin acts in the shuttlecock raising type hood according to claim 1.

[Claim 4] In the shuttlecock raising type hood according to claim 1, a hinge mechanism, An intermediate link slid along a slot established in the hood side hinge concluded at the hood side, the body side hinge concluded at the body side, the body side hinge, or the hood side hinge, in a pin supported so that this intermediate link and the hood side hinge can be rotated, and the upper part of the body side hinge which is come out of and constituted and touches said pin. A shuttlecock raising type hood, wherein notching etc. are provided, power of said shuttlecock raising means fractures the upper part of said body side hinge when power of set load **** acts on said pin, and a hood leaps up.

[Claim 5] In the shuttlecock raising type hood according to claim 1, a hinge mechanism, A pin which is rotation freedom at the hood side hinge concluded with a bolt etc. at the hood side, the body side hinge concluded with a bolt etc. at the body side, and the hood side hinge, A shuttlecock raising type hood, wherein it comes out, are constituted, notching etc. are provided in

the upper part of the body side hinge which touches said pin, power of said shuttlecock raising means fractures the upper part of said body side hinge when power beyond set load acts on said pin, and a hood leaps up.

[Claim 6]A shuttlecock raising type hood by which it is fixing [in the shuttlecock raising type hood according to claim 2 to 3, while an intermediate link slides, move a slot established in the body side hinge to a vertical direction, and form a key part near a set height, and / said intermediate link] characterized.

[Claim 7]A shuttlecock raising type hood performing maintenance of a hood after a raising, and collision energy absorption by said shuttlecock raising means in a hood in the shuttlecock raising type hood according to claim 4.

[Claim 8]the shuttlecock raising type hood **** according to claim 3 to 4 -- a section of notching and the shape of approximately isomorphism to notching etc. which were provided in the upper part of the body side hinge, [insert and] A shuttlecock raising type hood, wherein it eliminates the hood back end, power of said shuttlecock raising means fractures said section in which power beyond set load acted on said pin at the time of a raising and a hood leaps up.

[Claim 9]the maximum weak point of a fracture in a direction which sections given in claim 3, or 4 or 7 which had bounded and were provided in the upper part of the body side hinge in a formula hood, such as notching, make said hood lock device an abbreviated fulcrum, and said hood back end rotates -- abbreviated other side ***** -- a shuttlecock raising type hood characterized by things.

[Translation done.]